

REMARKS

Reconsideration of the application in view of the following remarks is respectfully requested.

Status of the Claims

Claims 1-5 were previously pending.

Claims 1-5 are rejected.

Claims 1-5 are amended. No new matter is added.

Claims 1-5 are currently pending for examination.

The amendments to Claim 1 are supported by disclosures in the application-as-filed including, but not limited to, the discussion of the “parallel” and “series” arrangements located at Paragraphs 35-36 and Figure 3 of Applicant’s U.S. Patent Application Publication No. 2007/0201990 (hereinafter “Publication”).

Rejections under 35 U.S.C. § 102

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by International Patent Application Publication No. WO 99/53200 to Fogotti (hereinafter “Fogotti”).

Amended Claim 1 teaches, *inter alia*, a discharge system for compressors including a valve, wherein the valve can assume either an open or a closed position. The valve assumes an open position “when a gas mass flow passing from the compression chamber to the first discharge chamber reaches a determined gas mass flow value,” i.e., when the gas mass flow exceeds a specific threshold value. The valve assumes a closed position “when said gas mass flow reaches values that are lower than the determined gas mass flow value,” i.e., when the gas mass flow is lower than the threshold value. Therefore, the valve switches from a closed position to an open position when the gas mass flow increases to a value greater than the threshold and, *vice versa*, switches from an open position to a closed position when the gas mass flow decreases to a value less than the threshold.

Claim 1 has been amended to teach that, when the valve is in an open position, it establishes “a **parallel arrangement** of the discharge chambers” that provides a “**direct fluid communication**

between the first and third discharge chambers.” Amended Claim 1 further teaches that, when the valve is in a closed position, it establishes “a serial arrangement of the discharge chambers . . . blocking, at least in most part, said direct fluid communication between the first and third discharge chambers.” Thus, when the valve is in an open position, the three discharge chambers form a parallel arrangement in which fluid from the first discharge chamber may flow directly into either the second or third discharge chambers (see Publication, ¶¶ 29 and 35 and Fig. 3). Therefore, in the parallel arrangement, fluid may follow two different paths, either flowing from the first discharge chamber directly into the third discharge chamber, or flowing from the first discharge chamber through the second discharge chamber into the third discharge chamber. By contrast, when the valve is in a closed position, the three discharge chambers form a series arrangement in which fluid from the first discharge chamber cannot flow directly into the third discharge chamber. Therefore, in the series arrangement, fluid must flow along a single path from the first discharge chamber through the second discharge chamber into the third discharge chamber.

The Examiner contends that Fogotti discloses every single element of amended Claim 1. However, Fogotti merely discloses a static series arrangement of chambers. Fogotti discloses a consecutive arrangement of chambers wherein fluid flow is restricted to a single path through the chambers (see, e.g., Fig. 2, noting the direction of the arrows indicating fluid flow). Fogotti does not disclose the use of a valve that switches the arrangement of the chambers between series and parallel arrangements in response to changes in the fluid flow. In fact, Fogotti teaches away from the use of such a valve because Fogotti teaches the use of a static series arrangement of chambers that would be incapable of functioning in parallel.

Furthermore, although Fogotti does disclose the use of a valve **30** that is sensitive to the incident fluid flow, the purpose of this valve is to change the cross-sectional area of orifice **14** so as to limit the flow rate into the discharge tube (see Fogotti, p. 7, lines 23-31). The valve **30** does not change the apparatus in Fogotti from a series to a parallel arrangement and, as discussed above, would be incapable of doing so because Fogotti discloses an arrangement of chambers in which fluid must always follow a single path (i.e., a static series arrangement).

In view of the foregoing, Fogotti does not disclose, teach or suggest a valve that switches a system of discharge chambers between a series and parallel arrangement in response to changes in the gas mass flow, as taught by amended Claim 1. Therefore, for at least the foregoing reasons, amended Claim 1 is neither anticipated by nor obvious over Fogotti, and this claim is in condition for allowance. Withdrawal of the rejection of this claim is respectfully requested.

With respect to Claims 2 and 3, the Office Action Summary indicates that these claims have been rejected. However, the body of the Office Action does not state the basis of the rejections of these claims (i.e. the reference or references over which the Examiner believes these Claims are unpatentable, if any). Nonetheless, Applicant notes that the Examiner has discussed features of Claim 3, e.g. a valve plate provided between the compression chamber and the first discharge chamber, in Paragraph 3 of the Office Action, which is nominally directed only to the rejection of Claim 1 over Fogotti. Applicant further notes that Claim 3 depends from Claim 2, and that Claims 4-5 are separately addressed in Paragraph 5 of the Office Action. Therefore, Applicant will proceed under the assumption that the Examiner intended to state a rejection of Claims 2-3 as being anticipated by Fogotti.

Dependent Claims 2-3 both depend from independent base Claim 1. Therefore, both of these claims are in condition for allowance due to their dependence on an allowable independent base claim. Withdrawal of the rejections of these claims is respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 4-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fogotti in view of U.S. Patent Application Publication No. 2002/0136646 by Seo et al. (hereinafter "Seo").

Because Claims 4-5 depend from independent base Claim 1, the foregoing arguments with respect to the allowability of Claim 1 over Fogotti apply to Claims 4-5 as well. Furthermore, nothing in Seo discloses, teaches or suggests a valve that switches a system of discharge chambers between a series and parallel arrangement in response to changes in the gas mass flow, as taught by Claims 4-5.

Furthermore, the claimed valve provides significant advantages over the prior art, including the cited combination of Fogotti and Seo. One advantage of the claimed valve is that it provides a “series” arrangement of discharge chambers when the fluid flux is low, and a “parallel” arrangement of discharge chambers when the fluid flux is high. A series arrangement is desirable at low fluid flux because, in such a situation, relatively little power is needed to drive the fluid through the system. Therefore, it is advantageous to have a long flow path so as to increase noise dampening at low fluid flux. A series arrangement provides such a long flow path (see Publication, ¶ 36). Furthermore, a parallel arrangement is advantageous at high fluid flux because, in such a situation, a relatively large amount of power is needed to drive the fluid through the system. Therefore, it is advantageous to allow at least a part of the fluid to follow a shorter flow path (i.e. the path flowing from the first discharge chamber directly into the third discharge chamber) so as to decrease the power required. A parallel arrangement allows at least part of the fluid to follow a shorter flow path, which decreases the power needed to drive the fluid through the system (see Publication, ¶¶ 35-36).

The claimed discharge system operates optimally with respect to noise dampening and power usage at both low and high fluid flux because it automatically switches between a “parallel” arrangement and a “series” arrangement in response to changes in the fluid flux. This automatic switching is accomplished by the claimed valve. Neither Fagotti nor Seo disclose, teach, or suggest the use of a valve to automatically switch a discharge system from a “parallel” arrangement to a “series” arrangement in response to changes in the fluid flux, and it would not have been obvious to one of ordinary skill in the art at the time of invention to implement such a valve.

For at least the foregoing reasons, Claims 4-5 are neither anticipated by nor obvious over the cited combination of Fogotti and Seo, and these claims are in condition for allowance. Withdrawal of the rejections of these claims is respectfully requested.

CONCLUSION

Each and every point raised in the Final Office Action dated January 13, 2009 has been addressed on the basis of the above amendments and remarks. In view of the foregoing it is believed that Claims 1-5 are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

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Respectfully submitted,

By 

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